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INFORMAL/DRAFT AMENDMENT

REMARKS

Claims 1, 4-9, 11-16, 18, 19, 21-30 and new claims 31-33 are now in this application. Claims 2, 3, 10, 17 and 20 are cancelled. Claims 1, 4-9, 11-16, 18, 19 and 21-30 are rejected.

Claims 1, 4, 6-8, 11-16, 19, 21-25 and 28-30 are rejected under 35 U.S.C. §103(a) as being unpatentable over Burgess (U.S. Pat. No. 5,695,859) or Burgess (U.S. Pat. No. 5,828,289) in view of Burgess (U.S. Pat. No. 6,114,645).

The Examiner's rejection is respectfully traversed on the grounds that the Burgess references do not disclose all of the features set forth in independent claims 1, 14 and 28.

Specifically, claim 1 recites that the detection units are arranged such that the operation member is supported at a plurality of points around an outer circumference thereof.

An advantage of supporting the operation member around its outer circumference by means of the detection units is that a rather large space can be formed between the detection units and thus inherently below a central portion of the operation member. The operation member can therefore be displaced in any direction substantially without restrictions. Moreover, in view of the creation of the space between the detection units and below the operation member, it is possible to insert a control substrate 41 with colored lights 43 below the operation member (see Fig. 1).

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Claims 1 and 28 recite that each detection unit includes a sensing element and a coating member with the coating member being arranged to contact the operation member and support the operation member. Contact between the coating member and the operation member facilitates the transmission of force via the coating member to the sensing element.

Claim 14 recites that the detection unit includes a coating member having a protrusion spaced from both longitudinal ends of the electrode plates. Thus, the protrusion is shorter in the longitudinal direction than the electrode plates (see, e.g., Fig. 4A).

An advantage of the protrusion being shorter than the electrode plates in the longitudinal direction is that the load on the operation member can be concentrated toward the central side or center of the electrode plates irrespective of the portion of the detection unit where the load is applied. That is, if the protrusions were to extend from one longitudinal end to the other, the sensitivity of the detection unit would be less at the longitudinal ends in view of the presence of the lateral wall portion of the coating member which increases the resistance to prevent contact between the electrode plates. By spacing the ends of the protrusions from the longitudinal ends of the electrode plates, the sensitivity of the longitudinal ends of the detection unit does not decrease in comparison to the sensitivity of the detection units at locations where the protrusion is present.

None of the Burgess patents disclose the features described above. Specifically, Burgess '859, Burgess '289 and Burgess '645 do not disclose a plurality of detection units arranged such that an operation member is supported at a plurality of points around the outer circumference thereof. Rather, in the switching devices of

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Burgess '859 and '289, a mat switch 130 extends below the lever 200 or coupling device 210 and supports the lever 200 at a locations other than at a point around the circumference of the lever 200. Also, in the embodiment shown in Fig. 16, a trunk portion 217 and upright post 214 are arranged below a center portion of the coupling device 210.

Thus, in contrast to the embodiment of the invention set forth in claim 1, the operation member of Burgess '859 and Burgess '289 is not supported at a plurality of points around an outer circumference. The advantages realized in the invention by supporting the operation member around the outer circumference, discussed above, are therefore not achieved by the Burgess devices.

Moreover, with respect to the feature of the coating member being arranged to contact and support the operation member in claims 1 and 28, the Examiner considered the lever 200 of Fig. 15 in Burgess '859 and Burgess '289 to constitute an operation member. As is clear from the specification at col. 11, lines 37-41, the lever 200 is not in contact with the detection unit (mat switch 130) in the absence of a downward force on the arm 202 of the lever 200. Thus, no part of the detection unit can be said to contact and support the operation member.

Furthermore, with respect to claims 1 and 14, the Burgess references do not disclose a protrusion spaced from longitudinal ends of electrode plates, i.e., to thereby have a length which is shorter than the length of the electrode plates. The Examiner considered ribs 131e of the mat switch 130 of Burgess '859 and Burgess '289 to constitute a protrusion. Ribs 131e extend entirely between the longitudinal ends of the mat switch 130 as clearly shown in Fig. 13. The Examiner statement that the spacing of the protrusion from both longitudinal ends is a design choice since it

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does not bring unexpected results is respectfully traversed because the absence of the protrusions at and proximate the longitudinal ends prevents a decrease in the sensitivity of the detection unit which would be caused if the protrusions extended entirely to the longitudinal ends. As discussed above, the sensitivity of the detection unit decreases at and proximate the longitudinal ends in view of the presence of the longitudinal wall of the detection unit so that by not forming the protrusions at and proximate the longitudinal ends, such a decrease in sensitivity is avoided. This advantage is neither taught or suggested in the Burgess references.

Moreover, ribs 131e are not comparable to the protrusions in the invention because the ribs 131e do not limit the position to which the load toward the sensing element (electrodes 132,135 as considered by the Examiner) is transmitted. As set forth at col. 11, lines 9-11 of Burgess '289, the ribs 131e enable the cover portion 131b of the mat switch 130 to be depressed at least a distance equal to the height of the ribs. This is a minimum permitted distance but does not correspond in any manner to a limitation, i.e., an imposed maximum, on the permitted depression of the cover portion 131b.

In view of the arguments presented above, it is respectfully submitted that the rejection of claims 1, 4, 6-8, 11-16, 19, 21-25 and 28-30 under 35 U.S.C. §103(a) as being unpatentable over Burgess '859 or Burgess '289 in view of Burgess '645 has been overcome and should be removed.

Claims 5 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Burgess '859 or Burgess '289 and Burgess '645 and further in view of Saur et al. (U.S. Pat. No. 6,110,073). Claim 26 is rejected under 35 U.S.C. §103(a) as being

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unpatentable over Burgess '859 or Burgess '289 and Burgess '645 and further in view of applicant's admitted prior art.

The Examiner's rejections are respectfully traversed on the grounds that Saur et al. does not disclose the features set forth in claims 1 and 14, upon which claims 5 and 18 depend, respectively, and the applicant's admitted prior art does not disclose the features set forth in claim 14 upon which claim 26 depends. For example, Saur et al. and the admitted prior art do not disclose a coating member having a protrusion which is shorter than electrode plates of a sensing element.

As such, one skilled in the art could not have combined any purported teachings of Burgess '859, Burgess '289, Burgess '645 and Saur et al. and arrive at the embodiments of the invention set forth in claims 5 and 18 or combined any purported teachings of Burgess '859, Burgess '289, Burgess '645 and the admitted prior art and arrive at the embodiment of the invention set forth in claim 26.

In view of the foregoing, it is respectfully submitted that the rejection of claims 5 and 18 under 35 U.S.C. §103(a) as being unpatentable over Burgess '859 or Burgess '289 in view of Burgess '645 and Saur et al. and the rejection of claim 26 under 35 U.S.C. §103(a) as being unpatentable over Burgess '859 or Burgess '289 in view of Burgess '645 and Saur et al. have been overcome and should be removed.

Claims 9 and 27 are rejected under 35 U.S.C. §103(a) as being unpatentable over Burgess '859 or Burgess '289 in view of Hector et al. (U.S. Pat. No. 4,720,789).

Claim 9 recites that the detection units are arranged such that the operation member is supported at a plurality of points around an outer circumference thereof

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and that each detection unit includes a sensing element and a coating member with the coating member being arranged to contact the operation member and support the operation member. Claim 9 also recites that a stopper is arranged inward of the detection units.

Burgess '859, Burgess '289 and Hector et al. do not disclose or teach in combination an input apparatus for a game system including a plurality of detection units which support an operation member at a plurality of points around an outer circumference thereof and include a coating member arranged to contact and support the operation member.

As noted above, the operation member of Burgess '859 and Burgess '289 is not supported at a plurality of points around an outer circumference and there is no stopper arranged inward of the detection units. Hector et al. also do not disclose stoppers arranged inward of a detection unit which supports the operation member around an outer circumference thereof.

As such, one skilled in the art could not have combined any purported teachings of Burgess '859, Burgess '289 and Hector et al. and arrive at the embodiments of the invention set forth in claims 9 and 27.

In view of the foregoing, it is respectfully submitted that the rejection of claims 9 and 27 under 35 U.S.C. §103(a) as being unpatentable over Burgess '859 or Burgess '289 in view of Hector et al. has been overcome and should be removed.

New claims 31-33 are added. Claim 31 specifies that the detection units are elongate. Claims 32 and 33 specify that the stoppers are arranged external of the

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detection units. This feature is shown in Figs. 2 and 7 and described in the specification at page 10, lines 2-4. The Burgess references do not disclose a stopper arranged external of a detection unit to limit movement of an operation member. Rather, as considered by the Examiner, the stoppers of Burgess (struts 137) are arranged inside of the mat switches 130. An advantage of arranging the stoppers external of the detection units is that the stopper becomes a support point after the operation member contacts the stopper. By contrast, when the stopper is arranged inside of the detection unit as in Burgess '859 and Burgess '289, the stopper cannot contact the lever 200 and thus cannot form a support point for limiting movement of the lever 200.

For the convenience of the Examiner, APPENDIX I is provided herewith having a complete set of pending claims with all amendments effected therein.

Applicant respectfully requests a two month extension of time for responding to the Office Action. Please charge the fee of \$410 for the extension of time to Deposit Account No. 10-1250.

Lastly, submitted herewith is a new Abstract for JP-A-H7-262884 and a new Abstract for JP-A-H10-295937. These abstracts should replace the Abstracts previously submitted with the references in an information Disclosure Statement submitted on May 20, 2003.

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In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited. Please charge any deficiency or credit any overpayment to Deposit Account No. 10-1250.

Respectfully submitted,
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APPENDIX I

ALL PENDING CLAIMS WITH AMENDMENTS EFFECTED THEREIN

1. An input apparatus for game systems comprising:
an operation member adapted to receive a load; and
a plurality of detection units arranged such that said operation member is supported at a plurality of points around an outer circumference thereof, each of said detection units being capable of outputting a predetermined detection signal in response to changes in load in a predetermined direction in relation to said operation member,
each of said detection units including a sensing element and a coating member made of elastic material, said coating member coating said sensing element and functioning as a medium to transmit the load applied to said operation member to said sensing element,
said sensing element including one pair of electrode plates arranged to contact or separate from each other according to the load,
said coating member including a protrusion for limiting a position to which the load toward said sensing element is transmitted, said protrusion being shifted from both longitudinal ends of said electrode plates into a central side thereof,
said coating member being arranged to contact said operation member and support said operation member in the predetermined direction.
4. The input apparatus of claim 1, wherein said protrusion is arranged on an outer surface of said coating member.

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5. The input apparatus of claim 1, wherein said protrusion is arranged on an inner surface of said coating member.

6. The input apparatus of claim 1, further comprising a stopper for limiting displacement of said operation member in relation to the predetermined direction in a certain range.

7. The input apparatus of claim 6, wherein said operation member is formed into a panel, and said stopper is located closer to a center of said operation member than said detection unit.

8. The input apparatus of claim 7, wherein said stopper adjoins said detection unit.

9. An input apparatus for game systems comprising:
a base having a plurality of panel-attaching sections;
an operation member arranged at each of said panel-attaching sections and adapted to receive a load;
a plurality of detection units arranged at each of said panel-attaching sections such that said operation member is supported at a plurality of points around an outer circumference thereof;
a plurality of stoppers for limiting an amount of pushing operation toward said operation member,
said stoppers being arranged inward compared to said plurality of detection unit,
each of said detection units being located between a panel-supporting surface formed on each of said panel-attaching sections and said operation member

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and being capable of outputting a predetermined detection signal in response to changes in pushing load applied to said operation member,

each of said detection units including a sensing element and a coating member made of elastic material, said coating member coating said sensing element and functioning as a medium to transmit the load applied to said operation member to said sensing element,

said coating member being arranged to contact said operation member and support said operation member.

11. The input apparatus of claim 1, wherein said operation member is a foot panel on which a player is able to stamp.

12. The input apparatus of claim 1, wherein said electrode plates comprise a pair of opposed metallic plates and said sensing element further comprises insulating means for separating said metallic plates from one another, said coating member being arranged to overlie an upper one of said metallic plates and lie below a lower one of said metallic plates.

13. The input apparatus of claim 1, wherein said coating element defines an interior cavity, said sensing element being arranged in said cavity.

14. A foot switch for an input apparatus for game systems comprising:
a frame defining a support surface;
at least one detection unit arranged on said support surface of said frame and to output a detection signal in response to changes in a load applied in a predetermined direction, each of said at least one detection unit comprising a sensing element and a coating member made of elastic and surrounding said sensing element,

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said sensing element including a pair of electrode plates arranged to contact or separate from each other according to the load, and said coating member including a protrusion for limiting a position to which the load toward said sensing element is transmitted, said protrusion being spaced from both longitudinal ends of said electrode plates; and

an operation member adapted to receive a load and arranged in contact with said coating member of said at least one detection unit such that said coating member supports said operation member on said frame and transmits the load received by said operation member to said sensing element.

15. The foot switch of claim 14, wherein said electrode plates comprise a pair of opposed metallic plates and said sensing element further comprises insulating means for separating said metallic plates from one another, said coating member being arranged to overlie an upper one of said metallic plates and lie below a lower one of said metallic plates.

16. The foot switch of claim 14, wherein said coating element defines an interior cavity, said sensing element being arranged in said cavity.

18. The foot switch of claim 14, wherein said protrusion is arranged on at least one of an outer surface and an inner surface of said coating member.

19. The foot switch of claim 14, wherein said coating member is elongate and said protrusion extends longitudinally along said coating member, said protrusion being spaced from longitudinal ends of said coating member.

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21. The foot switch of claim 14, further comprising at least one stopper for limiting displacement of said operation member.

22. The foot switch of claim 21, further comprising at least one sustaining plate arranged on said frame, said at least one detection unit and said at least one stopper being arranged on a respective one of said at least one sustaining plate.

23. The foot switch of claim 21, wherein said at least one stopper is arranged on an underside of said operation member.

24. The foot switch of claim 21, wherein each of said at least one stopper is arranged proximate a respective one of said at least one detection unit.

25. The foot switch of claim 14, wherein said coating member includes a plurality of separate protrusions.

26. The foot switch of claim 14, further comprising at least one sustaining plate arranged on said frame and including a raised, stopper portion for limiting displacement of said operation member, said at least one detection unit being arranged on a respective one of said at least one sustaining plate.--

27. The input apparatus of claim 9, wherein said operation member is a foot panel on which a player is able to stamp.

28. An input apparatus for game systems comprising:
an operation member adapted to receive a load and having an outer surface portion formed into a panel; and

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a detection unit capable of outputting a predetermined detection signal in response to changes in load in a predetermined direction in relation to said operation member, and

a stopper for limiting displacement of said operation member in relation to the predetermined direction in a certain range,

said detection unit including a sensing element and a coating member made of elastic material, said coating member coating said sensing element and functioning as a medium to transmit the load applied to said operation member to said sensing element,

said coating member being arranged to contact said operation member and support said operation member in the predetermined direction,

said detection unit being arranged to contact said outer surface portion of said operation member, and

said stopper being located closer to a center of said operation member than said detection unit.

29. The input apparatus of claim 28, wherein said stopper adjoins said detection unit.

30. The input apparatus of claim 28, wherein said operation member is a foot panel on which a player is able to stamp.

31. The input apparatus of claim 1, wherein said detection units are elongate.

32. The input apparatus of claim 9, wherein said stoppers are arranged external of said detection units.

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33. The input apparatus of claim 28, wherein said stopper is arranged external of said detection unit such that said operation member is in contact with said stopper upon application of the load in the predetermined direction.

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